NASA Parental Consent for Participation

Information and Forms Required for Program Participants Under Age 18

The goal of NASA's Reduced Gravity Student Flight Opportunity Program (RGSFOP) is to demonstrate – in a very unique way – that science is both intellectually stimulating and fun! In doing so, NASA has chosen to conduct the program in a working operational airport and flight environment. Although every effort has been made to ensure the safety of your child/ward during his/her visit to the Johnson Space Center, there are risks about which you should be aware.

Within this document, NASA discusses those risks and seeks your consent in writing to allow your child/ward to participate, regardless of whether he/she is to actually fly on its KC-135A reduced gravity aircraft.

Background Information on Physiological Training (Flyers Only Participate)

Each person who is to fly on the KC-135A reduced gravity aircraft must successfully complete NASA's Physiological Training Program, the goal of which is to convey an understanding of the reduced gravity flight environment and associated physiological stresses. It covers potential problems of both high- and low-altitude flight and recommends procedures to properly respond to them.

The Physiological Training Program consists of classroom presentations on the following subjects:

- Physics of the atmosphere and respiration
- Hypoxia (lowered oxygen requirements)
- Decompression Sickness
- Ear Blocks
- Sinus Blocks
- Evolved gas disorders (also known as bends)
- Spatial Disorientation
- Oxygen Equipment

In addition, your child/ward will participate in a session within an altitude chamber to 25,000 feet under very controlled conditions to learn his/her unique first symptoms of hypoxia. In addition, a simulated rapid decompression demonstration from 8,000 feet to 22,000 feet is conducted to acquaint the students with a loss of aircraft cabin pressurization and appropriate countermeasures for dealing with it.

NASA has been conducting physiological training for over 30 years without any significant problems. On occasion, students experience ear blocks and sinus blocks. These conditions are easily managed in the altitude chamber by the instructors who accompany the students. A NASA Flight Surgeon is always in attendance.

In extremely rare instances an evolved gas problem (bends) has occurred -- four cases in 31 years and over 15, 000 have been trained. NASA has a recompression chamber on standby for all altitude chamber sessions to treat individuals if necessary. No one has ever been admitted to a hospital because of chamber-caused medical problems.

Background Information on KC-135 Flights

Flying in NASA's reduced gravity aircraft is a physical experience. The flight involves experiencing something like the first big drop on a huge roller-coaster ride – but the difference is that your child/ward will experience it approximately 30 times in a single 1.5-hour flight.

The takeoff and landing experience is very similar to a normal airline flight. However, at the beginning of each zero-g maneuver (sometimes called a parabola) the aircraft pulls nose-up to approximately 45 degrees above the horizontal. During this pull-up your child/ward will experience a 1.8 g (1.8 times the pull of gravity) force on his/her body for about 40 seconds. The aircraft will then arc over the top of the parabola and the g's go to zero for a period of about 25 seconds. Then, with the nose of the aircraft pointed down at about 45 degrees to the horizontal, the aircraft begins a pull-out where everyone within it will experience the return of the 1.8 g's for another 40 seconds. Then, with no pause, another parabolic maneuver begins.

A safety briefing film is shown to all KC-135 flyers prior to their flight. The film describes what the flyers may expect to experience and what is expected of them during the flight. Flyers are cautioned to not walk around during the l.8 g portions of the maneuver – one could trip and fall, and the floor "comes up" much faster than it does in a normal one-g environment. Flyers are also cautioned to not flail and kick during the zero-g portion of the maneuver because he/she could kick and damage some of the experiment equipment or could kick other flyers and hurt them.

Also pointed out in the safety film is the fact that a portion of the people on the flights get motion sickness, which can proceed to vomiting. This percentage is usually less than 20 and most people recover fully within an hour after the flight.

Flight in NASA's KC-135A is subject to the same possible failure and possible catastrophic crash scenarios of any other aircraft. However, NASA has been doing reduced gravity flying since 1973, following that of the U.S. Air Force which began in 1957. A total of 115,000 zero-g maneuvers have been accumulated in both programs with no accidents beyond the normal cuts and bruises which occur in the course of physical activities.

For Further Information

If you have a question which was not addressed in this document, please contact one of the following Reduced Gravity Student Flight Opportunities Program personnel:

- Physiological Training: Mr. Mike Fox, Johnson Space Center phone: 281-792-5724
- KC-135A Flights: Mr. John Yaniec, Johnson Space Ceter phone: 281-244-9211
- Program Administration: Dr. Donn G. Sickorez NASA - Johnson Space Center phone: 281-483-4724

PARENTAL CONSENT STATEMENT

I, _____, have read and understand this 2-page "Information for
(Name of Parent/Guardian – *please print neatly)*

Parents of Program Participants Under the Age of 18" regarding NASA's Reduced Gravity Student Flight Opportunities Program and do hereby give my consent for my child/ward, _____,
to participate. (Name of Student – *please print neatly*)

Including, if my child/ward has been designated as a member of his/her team's Flight Crew, physiological training and flight aboard the NASA KC-135 aircraft. My child/ward attends _____,
(Name of School – *please print neatly)*

1) The physiological training and flight procedures were explained prior to the execution of this form. I was afforded an opportunity to ask questions, and all questions were answered to my satisfaction.

2) I have received a briefing concerning the risks involved in this training and flight.

3) To the best of my knowledge, my child/ward is medically qualified to participate in the training and flight.

4) In the event of physical injury during this training or flight, NASA will voluntarily provide or cause to be provided the necessary immediate treatment. I also understand that NASA will pay for any claims of injury, loss of life, or property damage to the extent required by the Federal Tort Claims Act.

_____ _____
(Printed Name of Parent/Guardian) (Date)

_____
(Signature of Parent/Guardian)